eurofins | Environment Testing

PFAS Analysis

Per- and Polyfluoroalkyl Substances (PFAS) are a large group of manufactured compounds that are used in a wide range of industrial applications.

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What are PFAS Compounds?

Per- and Polyfluoroalkyl Substances (PFAS) are a large group of manufactured compounds that are used in a wide range of industrial applications. PFAS were also the major components in legacy Aqueous Film Forming Foams (AFFF) firefighting products that met former military and domestic specifications.

PFAS compounds are also used to repel oil and water in textile products like clothing, carpeting and furniture, as well as in food packaging and in the manufacture of fluoropolymers used in non-stick cookware. Some of the unique chemical characteristics that make PFAS compounds attractive for use in textiles, packaging and cookware, also render them resistant to biodegradation in the environment. Therefore, PFAS compounds are persistent and have been shown to bioaccumulate in humans and wildlife. PFAS compounds have been found throughout the environment in groundwater, surface water, biosolids, soil and sediment. Studies have shown detections of PFAS in air, biota and food.

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Capabilities & Capacity

Eurofins is a global leader in providing innovative and high-quality environmental analytical laboratory services. Our PFAS laboratories, located in Brisbane, Melbourne, Perth and Sydney are equipped with state-of-the-art technology and instrumentation. With thousands of employees dedicated to environmental testing worldwide, Eurofins has the capacity and financial stability to meet your project needs.

We use state-of-the-art LC-MS/MS instrumentation in support of trace-level reporting of PFAS contaminants as well as GC-MS/MS for the targeted analysis of other emerging contaminants such as neutral PFAS viz FtOHs. Additionally, Eurofins has both LC-QToF-MS and GC-QToF-MS accurate mass high-resolution quadrupole time-of-flight spectrometers that allow for non-targeted analysis and to confidently identify emerging chemical contaminants at trace concentrations in complex environmental and biological matrices.

Within our quarantined PFAS laboratories, we run numerous dedicated systems over multiple shifts, giving us unmatched capacity for any project size. We have optimised our systems so that the data reported to you meets or exceeds all of the current regulatory or health advisory limits. We offer several analytical methods to meet all regulatory criteria. The isotope dilution methods are utilised when testing potable water, non-potable water, soil/sediment, tissue and non-traditional matrices according to US EPA Method 1633. For drinking water, we support US EPA Methods 537.1 & 533. To accommodate unique project reporting requirements, data can be provided in a client specific electronic data deliverables (EDDs) such as ESdat or EQuIS formats as well as a Level I and/or IV US EPA data packages.

In line with the US EPA's September 2016 Technical Advisory, US DoE/DoD QSM 5.3 and US EPA methodologies, Eurofins includes branched/linear isomers in the quantification of PFOA, PFOS, PFHxS, N-EtFOSAA and N-MeFOSAA. While a technical grade standard of PFOA is analysed with each initial calibration for a qualitative reference and identification, branched/linear isomers are in the calibration for PFOS, PFHxS, N-EtFOSAA and N-MeFOSAA.

Our depth of knowledge, redundancy of systems and state-of-the-art facilities are key to our success in supporting the PFAS market. Eurofins' reinvestment in the business ensures that we continue to offer highly sensitive methods, low reporting limits and compliance with method protocols meeting regulatory guidance over the duration of the client program.

Samples

Eurofins Environment Testing perform PFAS analysis on a variety environmental matrices including:

- Air
- Drinking Water
- Groundwater
- Surface Water
- Wastewater
- Sewage
- Soil
- Sediment
- Outdoor Clothing & Equipment
- Food, Feed and Agricultural Products
- Emulsions and Fluoropolymer Dispersions
- Biota & Biotic Matrices
- Leachate
- Biosolids
- Consumer Products
- Cosmetics
- Food Packaging
- AFFF
- Textiles

Industry Leading PFAS Analysis

When dealing with an emerging contaminant, it is vital that you receive the highest level of accuracy and precision in the results that are reported. Utilising industry-leading practices, Eurofins Environment Testing Australia not only has dedicated laboratory space and instrumentation for PFAS analyses, but also committed teams who provide the highest quality results each and every time. These teams provide an unmatched level of expertise both in Australia but also draw upon experience from Eurofins Scientific global leadership in Europe and USA. In Australia, we have the latest technologies and capacity to analyse thousands of PFAS samples per month.

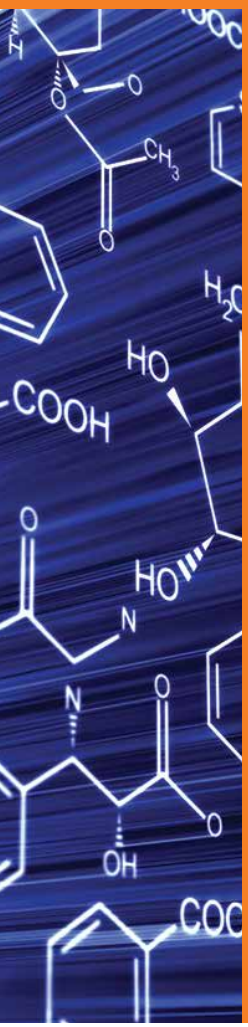
PFAS methodologies and regulations are continually evolving as additional compounds are identified and states continue to expand their testing requirements for these contaminants. With our dedicated teams, Eurofins is able to offer you the flexibility to develop and adapt to the continually changing analytical needs around PFAS analysis.

Eurofins Environment Testing Australia offers you:

- The analysis of Per-and Polyfluoroalkyl Substances (PFAS)
- The ability to test a wide range of matrices for 30 or more PFAS compounds
- The use of gold-standard isotope dilution methods US EPA Methods 537.1 and 533 for drinking water and US EPA Method 1633 for surface water, groundwater analysis, biosolids, sediments and tissues
- Adherence to Table B-15 of QSM 5.3 US Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories
- Four NATA accredited laboratories dedicated to analysing PFAS
- Analysis for GenX and ADONA and other perfluoroether carboxylic acids (PFECA) used as replacement compounds
- Multiple state-of-the-art LC-MS/MS instruments dedicated to PFAS analysis, along with a dedicated sample preparation and clean-up space minimising the chance of cross-contamination
- High resolution accurate mass LC-QToF-MS and GC-QToF-MS for identification of unknown PFAS compounds
- Chemical informatics applied to non-targeted analytical methods providing a basis for environmental forensics and source apportionment - "fingerprinting"
- Combustion Ion Chromatography for the determination of TOF, EOF & AOF
- TOP (Total Oxidisable Precursor) Assay
- Analytical results that meet or exceed current regulatory and advisory limits
- Accreditation to ISO/IEC 17025:2017

Sampling Considerations

Sampling can be challenging due to the widespread use of PFAS, as many materials typically used in field and laboratory operations may contain the contaminants. For example, products such as tubing, sample containers and sampling equipment that are made of polytetrafluoroethylene are often used in sampling. Since they may contain PFAS, these items should be evaluated before using for PFAS sampling. In addition, field clothing and food articles, such as water-resistant jackets or fast food wrappers, should be avoided because they also may contain PFAS that can contaminate samples. It is strongly recommended that proper laboratory field sampling and hygiene protocols are followed to ensure that testing results reflect actual PFAS levels in the analysed samples.



- New clothing and footwear
- PPE and treated fabrics
- Stain and water-resistant products
- Sunscreen
- Moisturisers
- Cosmetics
- Fast food wrappers
- Teflon™
- Containers with Teflon™-lined lids
- Aluminium foil
- Glazed ceramics
- Stickers and labels
- Inks
- Sticky notes
- Waterproof papers
- Drilling fluids
- Decontamination solutions
- Reusable freezer blocks

PFAS Accreditations

Eurofins holds certification with the National Association for Testing Authorities, Australia (NATA) against ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories at its Brisbane, Sydney and Melbourne laboratories.

Additionally, Eurofins Environment Testing Australia methods are compliant with the requirements, in full, as outlined in Table B-15 Per- and Polyfluoroalkyl Substances (PFAS) Using Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS) With Isotope Dilution or Internal Standard Quantification in Matrices Other Than Drinking Water of QSM 5.3 that are delineated in the US Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories.

Eurofins is the only Australasian laboratory that has participated in the National Measurement Institute's Proficiency Testing program since its inception in 2015 and is more than happy to provide the confidential Lab Codes so you can view our results that we are very proud to put on view.

Participation in proficiency testing schemes provides laboratories with an objective means of assessing and demonstrating the reliability of the data they are producing.

Objectives for interlaboratory comparisons are the

a). Evaluation of the accuracy of the results produced by laboratories for specific tests and monitoring laboratories' continuing performance

b). Identification of problems in laboratories which should lead to the initiation of actions for improvement. For example, these may be related to inadequate test procedures, effectiveness of staff training and supervision, or verification of equipment

c). Establishment of the comparability of tests

d). Establishment of the effectiveness of a test

e). Provision of additional confidence to laboratory customers

f). Identification of interlaboratory differences

g). Education of participating laboratories based on the outcomes of such comparisons

h). Establishment of uncertainty levels

i). Evaluation of the performance characteristics of a test

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